Agilent U1253B True RMS OLED Multimeter

Quick Start Guide

The following items are included with your multimeter:

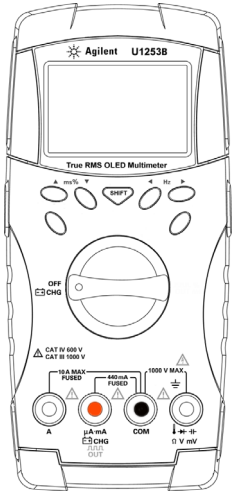
- ✔ Silicone test leads
- ✔ 4 mm probes
- ✔ Alligator clips
- ✔ Printed Quick Start Guide
- ✔ Rechargeable 7.2 V battery
- ✔ Power cord and AC adapter
- ✔ Certificate of Calibration

If anything is missing or damaged, please contact the nearest Agilent Sales Office.

For more detailed information, please refer to the *Agilent U1253B True RMS OLED Multimeter User's and Service Guide* on Agilent Web site (www.agilent.com/find/handheld-tools).

WARNING **Ensure the terminal connections are correct for that particular measurement selection before starting any measurement. To avoid damage to the device, do not exceed the input limit.**

Charging Battery

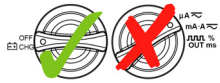


It is strongly recommended that you use the specified 24-volt DC adapter included as an accessory to charge the rechargeable battery.

1. Remove the test leads from the multimeter and turn the rotary switch to OFF CHG.
2. Plug the DC adapter into a power outlet.
3. Insert the red (+) and black (–) banana plugs (4 mm plugs) of the DC adapter to the CHG and **COM** terminals respectively. Ensure that the polarity of the connection is correct.
4. The display will show a countdown timer of 10 seconds for the self-test to start. The multimeter will output short single-tone sounds to remind you to charge the battery. Press Shift to start charging the battery, or the multimeter will automatically start charging after 10 seconds. It is recommended not to charge the battery if the battery capacity is over 90%.

NOTE For the battery charger, the main supply voltage fluctuations must not exceed ±10%.

CAUTION

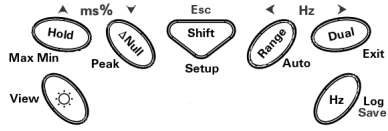


- Do not rotate the rotary switch from OFF CHG position when charging the battery.
- Perform battery charging **only** with 7.2 V or 8.4 V NiMH rechargeable battery, 9 V size.
- Disconnect test leads from all the terminals when charging the battery.
- Ensure proper insertion of battery in the multimeter, and follow the correct polarity.
- A new rechargeable battery comes in a discharged condition and must be charged before use (refer to the *U1253B User's and Service Guide* for charging instructions).

CAUTION

- Upon initial use (or after a prolonged storage period), the rechargeable battery may require three to four charge/discharge cycles before achieving maximum capacity. To discharge, simply run the multimeter under the rechargeable battery's power until it shuts down or the low battery warning appears.
- The multimeter may indicate that charging is complete after ten minutes when charging a new rechargeable battery. This is a normal phenomenon with rechargeable batteries. Remove the rechargeable battery from the device, reinsert it, and repeat the charging procedure.

Functions and Features



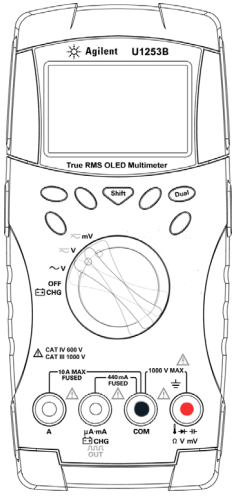
Action	Steps
Changes the OLED brightness	Press ☼.
Freezes the measured value	Press Hold.
Starts MIN|MAX|AVG|NOW recording	Press and hold Hold for > 1 s.
Offsets the measured value	Press ΔNull.
Changes the measurement range	Press Range.
Turns on auto range	Press and hold Range for > 1 s.
Turns on dual display	Press Dual.
Starts manual data logging	Press and hold Hz for > 1 s.
Views the logged data	Press ☼ for > 1 s, press ▲ or ▼ to scroll through the logged data.
Clears the logged data	Press ☼ for > 1 s, press Hz for > 1 s.

NOTE Your multimeter is capable of remote data logging. To use this feature, you will need an IR-USB cable (U1173A, purchased separately) and the Agilent GUI Data Logger Software (downloadable from www.agilent.com/find/hhTechLib).

Input Terminals and Overload Protection

Measurement Functions	Input Terminal		Overload Protection
Voltage		COM	1000 Vrms
Diode			1000 Vrms < 0.3 A short circuit current
Resistance			
Capacitance			
Temperature			
Current (µA and mA)	µA.mA	COM	440 mA/1000 V 30 kA/fast-acting fuse
Current (A)	A	COM	11 A/1000 V 30 kA/fast-acting fuse

Performing Voltage Measurements



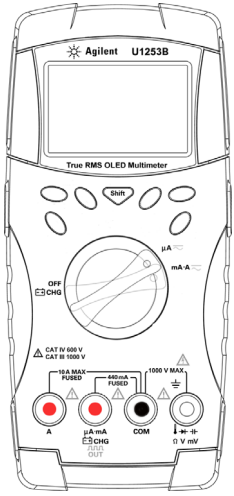
Measuring AC voltage

1. Set the rotary switch to V. For V and mV mode, press Shift to ensure ⋰⋱ is shown on the display.
2. Connect the red and black test leads to input terminals **V. mV (red)** and **COM (black)** respectively.
3. Probe the test points and read the display.
4. Press Dual to display dual measurements. Parameter can be switched consecutively.

Measuring DC voltage

1. Set the rotary switch to V or mV. Ensure that ⎓ is shown on the display.
2. Connect the red and black test leads to input terminals **V. mV (red)** and **COM (black)** respectively.
3. Probe the test points and read the display.
4. Press Dual to display dual measurements. Parameter can be switched consecutively.

Performing Current Measurements



Measuring AC current

1. Set the rotary switch to µA or mA·A. Press Shift to ensure is shown on the display.
2. Connect the red and black test leads to input terminals µ**A.mA (red)** and **COM (black)** or **A (red)** and **COM (black)** respectively.
3. Probe the test points in series with the circuit and read the display.

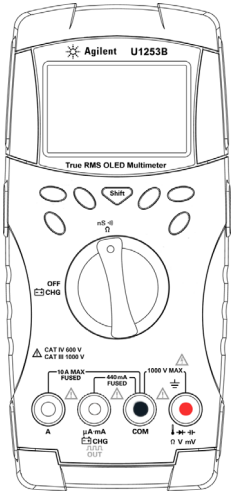
Measuring DC current

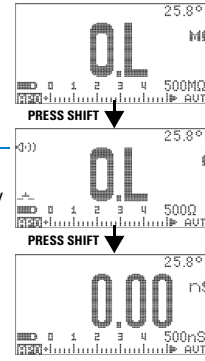
1. Set the rotary switch to µA or mA·A. Ensure that is shown on the display.
2. Connect the red and black test leads to input terminals **µA.mA (red)** and **COM (black)** or **A (red)** and **COM (black)** respectively.
3. Probe the test points in series with the circuit and read the display.

CAUTION

- If the current is ≤ 440 mA, connect the red and black test leads to input terminals **µA.mA (red)** and **COM (black).**
- If the current is > 440 mA, connect the red and black test leads to input terminals **A (red)** and **COM (black)**.

Performing Resistance, Conductance, and Continuity Measurements





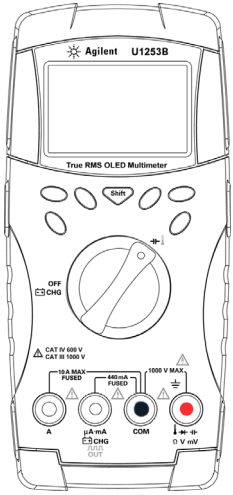
1 Set the rotary switch to nS Ω.

2 Connect the red and black test leads to input terminals Ω **(red)** and **COM (black)** respectively.

3 Probe the test points (by shunting the resistor) and read the display.

4 Press Shift to scroll through audible continuity (), conductance (nS), and resistance tests (Ω, kΩ, or MΩ) as shown.

Performing Capacitance and Temperature Measurements



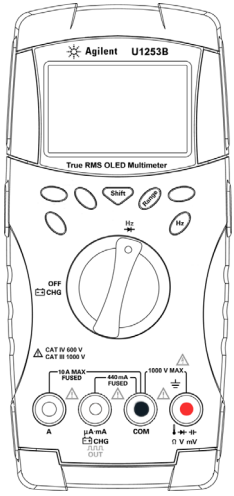
Capacitance

1. Set the rotary switch to ⊣⊢ / 🌡.
2. Connect the red and black test leads to input terminals ⊣⊢ **(red)** and **COM (black)** respectively.
3. Connect the red test lead to the positive terminal of the capacitor, and the black test lead to the negative terminal.
4. Read the display.

Temperature

1. Set the rotary switch to ⊣⊢ / 🌡. Press Shift to select temperature measurement.
2. Connect the red and black test leads to input terminals ⊣⊢ **(red)** and **COM (black)** respectively.
3. Plug the thermocouple adapter (with the thermocouple probe connected to it) into input terminals 🌡 **(red)** and **COM (black)**.
4. Touch the measurement surface with the thermocouple probe.
5. Read the display.

Frequency and Frequency Counter Measurements



Frequency Measurement

During AC/DC voltage or AC/DC current measurements, you can measure the signal frequency by pressing Hz at any time.

Frequency Counter Measurement

1 Set the rotary switch to Hz.

2 Press Shift to select the frequency counter ( ) function. The default input signal frequency is divided by 1. This allows signals up to a maximum frequency of 985 kHz to be measured.

3 Connect the red and black test leads to input terminals **V (red)** and **COM (black)** respectively.

4 Probe the test points and read the display.

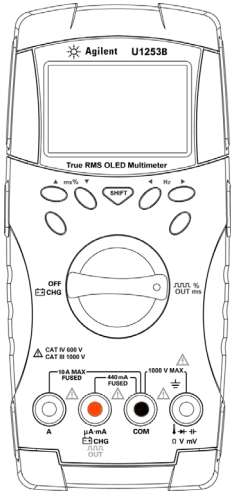
5 If the reading is unstable or zero, press Range to select division of input signal frequency by 100 (will be shown on the display). This accommodates a higher frequency range of up to 20 MHz.

6 The signal is out of the U1253B frequency measurement range of 20 MHz if the reading is still unstable after step 5.

WARNING

- **Use the frequency counter for low voltage applications. Never use the frequency counter on AC power line systems.**
- **For input more than 30 Vpp, you are required to use frequency measurement mode available under the current or voltage measurement instead of frequency counter.**

Square Wave Output



1. Turn the rotary switch to %/OUT ms.
2. Press Shift to select duty cycle (%) on the primary display.
3. The default square wave frequency is 600 Hz as shown by the secondary display, with a 50% duty cycle as shown by the primary display.
4. Press ◀ or ▶ to scroll through the available frequencies (there are 28 frequencies to choose from).
5. Press ▲ or ▼ to adjust the duty cycle. The duty cycle can be set from 0.390625% to 99.609375%, in steps of 0.390625%. The displayed duty cycle has a resolution of 0.001%.

Safety Notices

CAUTION A **CAUTION** notice denotes a hazard. It calls attention to an operating procedure, practice, or the like that, if not correctly performed or adhered to, could result in damage to the product or loss of important data. Do not proceed beyond a **CAUTION** notice until the indicated conditions are fully understood and met.

WARNING **A WARNING notice denotes a hazard. It calls attention to an operating procedure, practice, or the like that, if not correctly performed or adhered to, could result in personal injury or death. Do not proceed beyond a WARNING notice until the indicated conditions are fully understood and met.**

Safety Information

This meter is safety-certified in compliance with EN/IEC 61010-1:2001, UL 61010-1 Second Edition and CAN/CSA 22.2 61010-1 Second Edition, CAT III 1000 V/Category IV 600 V, Pollution Degree II. Use with standard or compatible test probes.

Safety Symbols

	Earth (ground) terminal
	Equipment protected throughout by double insulation or reinforced insulation
	Caution, risk of electric shock
	Caution, risk of danger (refer to the instrument manual for specific Warning or Caution information)
CAT III 1000 V	Category III 1000 V overvoltage protection
CAT IV 600 V	Category IV 600 V overvoltage protection

For further safety information details, refer to the
Agilent U1253B True RMS OLED Multimeter User's and Service Guide.

Printed in Malaysia

U1253-90045

Third Edition, September 12, 2012
© Agilent Technologies, Inc., 2009 – 2012

Agilent Technologies